

COMPARISON OF ROBOT-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY AND OPEN RETROPUBIC RADICAL PROSTATECTOMY

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Introduction

Robot-assisted laparoscopic radical prostatectomy (RALP) is increasingly becoming the most common surgical procedure performed for localized prostate cancer. Many UK institutions are now making the transition from open retro-pubic radical prostatectomy (ORRP) to RALP. Our objective was to identify how this transition affects outcomes?

Patients and methods

This is a cross-sectional study comparing 94 patients who underwent ORRP with 97 patients who underwent RALP between 2000 and 2010 performed by the same group of surgeons. Pre-operative parameters (age, PSA, tumour clinical T stage and tumour Gleason score); duration of the operation; post-operative parameters (hospital stay, haemoglobin drop, prostate volume, tumour volume, tumour volume/prostate volume ratio and tumour pathological T stage); general complications; functional outcomes (urinary continence and erectile function); and oncologic outcomes (surgical margin status and biochemical relapse) were analysed.

Results

Table 1 Peri-Operative Parameters I

Variable	ORRP mean (SD)	RALP mean (SD)	Difference between means	
			95% CI	p value
Age on Date of Operation (years)	60.7 (6.4)	60.6 (7.2)	-1.76 to 2.10	0.8654
Pre-Operative PSA (µgm/L)	7.2 (4.5)	7.8 (3.9)	-1.74 to 0.69	0.3952
Duration of Operation (minutes)	235.8(28.3)	284 (63.9)	-62.23 to -34.07	<0.0001
Post-Operative Haemoglobin Drop (gm/dL)	3.6 (1.6)	2.7 (1.3)	0.48 to 1.34	<0.0001
Hospital Stay (days)	4.2 (1.8)	2.9 (1.5)	0.74 to 1.66	<0.0001
Post-Operative Prostate Volume (mL)	51.8 (19)	59.1 (21.6)	-13.08 to -1.44	0.0154
Post-Operative Tumour Volume (mL)	2.4 (3.5)	5.3 (5.7)	-4.29 to -1.57	<0.0001
Post-Operative Tumour Vol/Prostate Vol (%)	5.2 (7.2)	9.9 (11.2)	-7.46 to -2.04	0.0007

SD = standard deviation ; CI = confidence interval

Table 2 Peri-Operative Parameters II

Variable	ORRP Proportion (%)	RALP Proportion (%)	p value	Relative Risk	
				Value	95% CI
Pre-op. Gleason score < 7	51/89 (57.3)	45/97 (46.4)	0.1450	1.24	0.93 to 1.63
Pre-op. Gleason score ≥ 7	38/89 (42.7)	52/97 (53.6)			
Post-op. Gleason score < 7	35/92 (38.1)	25/97 (25.8)	0.0857	1.48	0.96 to 2.26
Post-op. Gleason score ≥ 7	57/92 (61.9)	72/97 (74.2)			
General Complications	47/94 (50)	39/97 (40.2)	0.1923	1.24	0.91 to 1.71
Anastamotic stricture	11/94 (11.7)	2/97 (2.1)	0.0093	5.68	1.29 to 24.93
UI (12 months)	9/86 (10.5)	3/61 (4.9)	0.3601	2.13	0.60 to 7.54
ED (12 months)	29/57 (50.9)	49/62 (79)	0.0019	0.64	0.48 to 0.86
ED (24 months)	21/57 (36.8)	19/62 (30.7)	0.5611	1.20	0.73 to 1.99
PSM	27/92 (29.4)	17/97 (17.5)	0.0601	1.68	0.98 to 2.86
BCR	16/82 (19.5)	7/95 (7.4)	0.0238	2.65	1.15 to 6.12

CI = confidence interval; UI = Urinary Incontinence; ED = Erectile Dysfunction; PSM = positive surgical margin; BCR = Biochemical Relapse

Table 3 Peri-Operative Parameters III

Clinical Stage	ORRP (%)	RALP (%)	95% CI	p value
cT1	62/88 (70.5)	54/97 (55.7)	NA	NA
cT2	23/88 (26.1)	32/97 (33)	NA	NA
cT3a	1/88 (1.1)	8/97 (8.2)	NA	NA
cT3b	1/88 (1.1)	3/97 (3.1)	NA	NA
cT4	1/88 (1.1)	0	NA	NA
Pathological Stage				
pT2	49/92 (53.3)	60/96 (62.5)	- 0.05 to 0.23	0.2375
pT3a	30/92 (32.6)	24/96 (25)	- 0.05 to 0.21	0.2634
pT3b	6/92 (6.5)	7/96 (7.3)	- 0.07 to 0.08	1.0000
pT4	3/92 (3.3)	0	NA	0.1152

CI = confidence interval; NA = not available

Conclusion

In our hands RALP was a longer procedure but associated with less blood loss, shorter hospital stay and fewer general complications. Urinary incontinence and erectile dysfunction were less frequent with RALP which generated less positive surgical margins and biochemical relapses. The higher cost of RALP was translated into better outcomes; it should come down further with higher patient volumes and the expected improvement in operative times.

